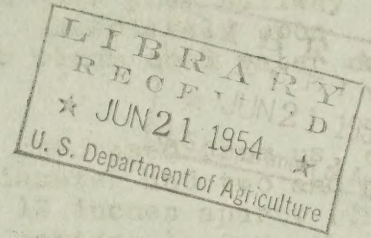


# NORDAN'S Grass Farms

*Growers of superior turf grasses*

TERMS: CASH

ABBEVILLE, ALABAMA



Dear Sir:

We acknowledge receipt of your recent inquiry concerning Meyer (Z-52) Zoysia. It is a permanent lawn grass which grows so dense that crab grass can't get started. It needs little fertilization and grows relatively slowly therefore requires less mowing than other kinds of grasses. This grass thrives on close cutting in contrast to most lawn grasses where recommended height of cut is 1½ to 2 inches. Best of all, it is a permanent grass which will not have to be replaced each year and improves in quality and appearance with age. Once it is established, this grass needs little or no watering.

Meyer (Z-52) was developed by the United States Golf Association Green Section in collaboration with the Bureau of Plant Industry, U.S. Department of Agriculture at Beltsville, Maryland and has been rigorously tested over many years. It has only recently been released to the public and is now being widely publicized in the better garden magazines.

Meyer Zoysia has no seed. It is propagated from vegetative stolons shipped in the form of solid sod of 2" plugs which can be set on twelve inch centers in an existing lawn and left to cover over. Meyer is a summer grass which grows vigorously in the hot humid weather when crab grass grows best. It becomes green in April and loses its color after the first killing frost in late October. During the winter months when Zoysia is dormant it is recommended that it be overseeded with a cool season grass such as Merion Bluegrass for cool season color.

Find enclosed our latest price list with Meyer Zoysia prices marked for your convenience.

We are receiving orders for immediate delivery or booking orders for specific date delivery. Your order accompanied by check or money order will reserve your supply of Zoysia. We will send detailed instructions for care and planting at time of shipment.

If we can be of further service to you, please feel free to contact us.

Sincerely yours for superior turf grasses,

NORDAN'S GRASS FARMS

W. W. NORDAN

**GUARANTEE** — We exercise every care to see that our products are handled in a manner that will keep them fresh and alive; we cannot guarantee that they will live or grow after they leave our hands. Any plants which prove to be something other than what they are sold for, will be replaced, but in no case a greater price be allowed for any product replaced than originally paid.  
All quotations are for immediate acceptance. No liability to us should stock be sold upon receipt of order or injury from heat or cold, in transit should strikes or other causes prevent delivery.

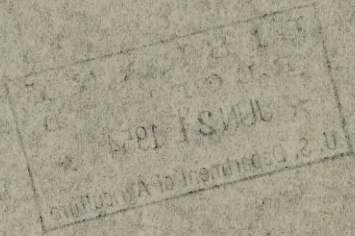


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ABBEVILLE, ALABAMA

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Producers of superior turf grasses



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## INSTRUCTIONS FOR PLANTING AND CARING FOR MEYER (Z-52) ZOYSIA GRASS

Within the next few days, you are to receive plugs of the newer Zoysia turfgrass for better lawns. Keep in close touch with your Railway Express Agent so as to avoid unnecessary delay. Immediately upon arrival, remove top of container and gently pour clean cool water over the plugs so as to soak each plug thoroughly.

Next, take your plugger-transplanter, which was purchased from us, or other instrument and make holes two inches in diameter and two and a half inches deep every 12 inches in rows spaced 12 inches apart. (This is what we mean when we say to plant on 12 inch centers.) Our plugger transplanter will drop each existing lawn plug beside each hole as you step upon it. Let these plugs remain where they fall.

When this operation is finished, fill each hole about  $\frac{1}{4}$  full of loose soil from the plugs you have just removed from your area. Take the well soaked Zoysia plugs and set into the holes on top of the loose soil. Using your foot, step upon each placed plug so as to cause the plug to fit closely against the sides of the hole, as well as to make the top of the plug level with the existing lawn. Take the remaining portions of the existing lawn plugs, crush the soil and work it in firmly around cut edges of the Zoysia plug so as to prevent air pockets remaining around sides and top of plug. Set your lawn sprinkler and soak all plugs with water. The newly planted area should be kept moist for several weeks following planting. Later, when your Zoysia becomes established, the extremely deep root system of each plant will eliminate the need of constant watering.

Meyer Zoysia can be expected to take over your existing lawn grasses within two years when plugged on 12 inch centers. The further apart your plugs are spaced, the longer period of time it will require to convert. Experimentally, plots that were set on 6" centers have converted in less than one year. Plugs placed into Dowfume treated bare soil can be expected to cover over in about one-half to one-third the time required otherwise.

Now that you have a potential lawn of permanent grass that will afford you beautiful greenage during the warmer months, we know that you are interested in the ultimate of year around greenage. This can be accomplished by overseeding your Zoysia with the new Merion (B-27) Bluegrass in the early spring or late fall. This should be broadcast with cyclone seeder or lawn fertilizer distributor at the rate of one pound of seed to each 1000 square feet. It is best to mix one pound of seed with two gallons of dry builders sand for more uniform distribution. Broadcast one-half of your seed and sand say going North and South, then apply the remaining one-half in opposite directions of East and West. Area should be gone over with backside of a fine tooth rake to shake all seed to the soil area.

During the hot weather months of June to middle of September, keep lawn mowed at  $\frac{1}{2}$  to  $1\frac{1}{4}$  inches to encourage your Zoysia, then after September mow at two inches to encourage your Bluegrass. Consult your local Nurseryman or County Agent for fertilizer recommendations suited to your particular lawn area.

NORDAN'S GRASS FARM, ABBEVILLE, ALABAMA







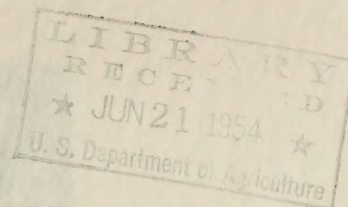
FIRST OF A SERIES

# Meet the Zoysia Family

By WILLIAM W. NORDAN

Nordan's Grass Farm

Abbeville, Alabama



A beautiful green lawn completes your landscape as a well selected oriental rug compliments the finest furnishings of your living room. Never would it be feasible or even thinkable to lavishly furnish your nicest room with the best of expensive period furniture, arranged and blended with professional skill, then without thought, carpet your floor with a coarse straw mat. Yet, as we tour our cities, we see beautiful shrubs, carefully placed, only to have the desired effect completely ruined by the foreground carpet—a coarse textured, pale lawn.

Almost any grass can make a pretty lawn—if the observer is standing at sufficient distance to miss the inherent ugliness of some grasses. Even Crabgrass and Crowfootgrass appear pretty at a distance. Other broadleaf grasses which have been very popular are St. Augustine, Carpetgrass and Centipede. But, very few, if any, of the people that know the true beauty of Zoysia Matrella lawns in the South and Meyer Zoysia in the North, can accept these broadleaf grasses as beautiful, especially at a close range view.

A well established Zoysia lawn is a beautiful sight. The fine dark green leaves stand so compactly erect that to walk upon it gives one an unique sensation, suggesting possibly the extra thick pile of a Persian rug. This fine velvety textured mat is so nearly solid that it crowds out weeds and foreign grasses and in full sunlight, frequently smothers Bermuda-grass. Crabgrass, a sun-loving pest sprouting from seed, doesn't stand a chance of germinating in the extra thick sod of the Zoysias.

Of the many desirable characteristics of the Zoysia family, one of the most outstanding is its adaptability to different types of soil and climate. No other lawn grass can equal this diversifiability; yet, it requires less maintenance and care than most other lawn grasses. Although, Zoysia prefers a pH of around 6, it is prolific on the alkaline soil of Florida and will thrive on the extreme acid soil along the Connecticut shore line. The Zoysias are extremely tolerant of salt water spray and have been suc-

cessfully grown using brackish water which is too salty to use on other lawn grasses. Another welcomed characteristic of this marvelous family is the fact that they tolerate no interference from any insects or known diseases. Extensive experiments, under constant observation for a period of over 20 years, verify no signs of any of the fungi that are detrimental to less-hardy grasses. The common "chinch bug" attacks, experienced by many lawn owners, is a thing of the past when you own a Zoysia lawn.

Now, let us become more familiar with this very popular family called Zoysia. It is well to know such a promising group. For our purposes, there are only four members. First, we have Zoysia Matrella, father of the family, referred to as "King of the lawn grasses". Then we have Zoysia Japonica, who is the mother of Meyer Zoysia. Meyer is a newcomer to the family but its fame is rapidly spreading far and wide. The last and least important member is Zoysia Tenuefolia, the black sheep of the fold.

First, let us discuss the head of the family. Zoysia Matrella is the best known and best dressed of the Zoysia. It is commonly called Japanese or Manilagrass, deriving the names from its native homes. However, strains of matrella have been found in Malaya and the Gilbert Islands. Because of its ability to survive and do well where other grasses fail, it is frequently known as "miracle" or "wondergrass". The spongy thick turf of matrella is one of its most desirable and exclusive features.

Matrella is a warm season grass and does especially well in the Southern states. In parts of Florida along the coast, it remains green throughout the winter. In the Northeastern states, it has proven very successful and does not winter kill. However, there it does not turn green until May and, in order to keep a permanent green lawn all year, it is necessary to overseed with a temporary wintergrass. In the South, it turns green somewhat earlier and remains green later in the fall than the well-known Bermuda.

Like most good things, it also has

some undesirable features. Because of its poor seeding ability, it must be propagated by sprigs or plugs. For sometime, matrella has been classified as an extremely slow grower. It required two or more years to cover when plugged from old sod. However, recent experiments prove that by using sprigs from young sod, planted on 10-inch centers, and forced with frequent applications of nitrogen fertilizer, a complete coverage can be obtained in a six-month growing season. It seems conclusive from my years of observation that the smaller the sprigs, the faster the spread. Although, this method does require more water.

The "King" demands much attention during the covering period. It must be kept totally free of competitive plants and should be fertilized lightly and often. Once established, it withstands an amazing degree of rough usage. Matrella is similar to the world-renowned English lawns in beauty and quality and it continues to improve with age becoming thicker, tougher, and requiring less care.

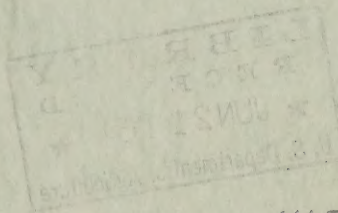
In most Southern areas, there are only a few months of the year that a Zoysia lawn isn't green. This short period can be easily breeched by overseeding with a temporary wintergrass such as Bluegrass or Ryegrass. Even though the grass will be in complete dormancy during the cold winter season, the thick carpet feeling is with your lawn the year around.

The question is frequently asked: "How will this grass do on my shady spots?" Under light and semi-shade, matrella produces a very good mat though not quite as thick as in full sun and if properly fertilized, it will do well even in full shade.

After considering the many advantages of this beautiful grass, one can readily see why it is known as the "king of all lawn grasses" and "father of the family". This refined grass deserves full consideration for number-one place as the foreground carpet on the most exacting landscape planting.

Next issue of GREEN THUMB, we would like to introduce another member of the family, "Mother Zoysia from Korea".





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FIRST OF A SERIES

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Nordan's Grass Farm  
Abbeville, Alabama

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Abbeville, Alabama

By definition, a lawn is an area of ground covered with grass which is kept closely mowed. However, a desirable lawn must pass more rigid requirements than are expressed in this definition. The lawn of our dreams would, of course, have to be absolutely carefree, laborless and beautiful throughout the seasons of the year. As of yet, we have found no such exacting grass. Zoysia Japonica has gone a long way in this direction. Coming down to earth from the aforementioned dream lawn, we agree that a desirable lawn should meet as many as possible of the following requirements: 1. Have a suitable surface and texture in keeping with the landscape picture. 2. Be of consistent growth and good color. 3. Have a permanent soil base and ground cover which will withstand the abuse of yard recreation. 4. Require a minimum of maintenance.

As compared with the more common lawn grasses, Zoysia Japonica, commonly known as Japanese Lawngrass, leads the field in most of the above requirements. This relatively newcomer to the American home is a native of the Asiatic mainland and was introduced into this country by means of seed from Korea in 1895. In its native homeland, it has survived the common low temperatures of 30 degrees below zero and on the other hand has prospered in the extreme heat of Southern Korea of above 100 degrees. Therefore, one can readily understand why this grass is one of the most adaptable of the turf grasses. The writer having observed this grass in its native home

of Korea, has marveled at the persistence of it to survive, much less to multiply and crowd out other stubborn grasses under some of the most adverse conditions. He has seen patches of this grass growing along the mountain sides in almost solid rock. Due to the deep rugged root system, which is characteristic of this plant, it holds a true green color even in this adverse condition of little moisture and small quantities, if any, of humus and nutrients. Acres upon acres of this grass grow wild in and around Seoul, Korea, just as the common bermudagrass does here. Of course, most of it is untended and undisturbed except for the seasonal gathering of straw and dormant grasses for the family fuel supply.

During this tour of Korea, we failed to find signs of insect attack or disease damage on Zoysia Japonica, while in some cases other plants nearby would be completely destroyed by the ravages of insects, disease or both. These desirable characteristics are for your having here in our own country when you plant a Japonica lawn. Yes, the days of "chinch bug" feasts and browning fungus spots are over once you establish this outstanding grass.

This grass makes an excellent lawn surface and is much more comfortable to walk upon than any of the more common turf grasses. However, one does not feel the sensation of walking on an air-foam mattress as is experienced with Zoysia Matrella. The reason being that japonica leaves are much larger in size and are spread further apart; in fact, it has the larg-

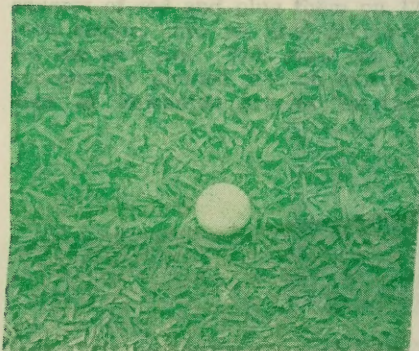
est leaf of any of the Zoysia family. Some of the earlier strains of this grass have leaves even larger than the leaves of St. Augustine and longer than the leaves of common bermuda. Comparatively speaking, this member of the family would not win in a texture beauty contest. Because of the loose knit sod in its early stages, it blends well and lives in harmony with other grasses, especially winter grasses such as Merion, Kentucky bluegrass and Ryegrass.

Japanese Lawngrass is of fairly consistent growth and, if unmowed, will seldom exceed eight inches in height. Because of its slow growth characteristic, it requires much less mowing than is experienced with many lawn grasses. The dark green color of a well kept japonica turf is a sight to be appreciated by the most critical lawn observer.

One of the more outstanding features of this lawn grass is the degree of traffic and abuse it can withstand, yet remain presentable and seemingly unharmed. The extraordinary healing qualities must be observed to really believe and fully appreciate. The United States Department of Agriculture has been testing this grass at the Beltsville, Maryland, trial grounds for a number of years and because of its outstanding qualities, it is being recommended not only for better lawns but especially for playgrounds, athletic fields, airports, cemeteries, golf courses and wherever a smooth turf is needed to withstand wear and tear of traffic.

Zoysia Japonica is one of the most drought resistant grasses yet found. Last year during the severe drought here in Alabama, our Zoysia Japonica was the only grass that did not require frequent irrigation throughout the dry spell. One plot of matrella nearby the japonica area was unwatered for comparison purposes and only 20 per cent of the plants survived. While our areas of St. Augustine, Centipede and even the improved bermudagrasses were browning over, the japonica plants merely closed their leaves together and did not wilt or discolor to a noticeable degree.

A distinct advantage to those that desire a Zoysia lawn with not much work attached to it, is the fact that

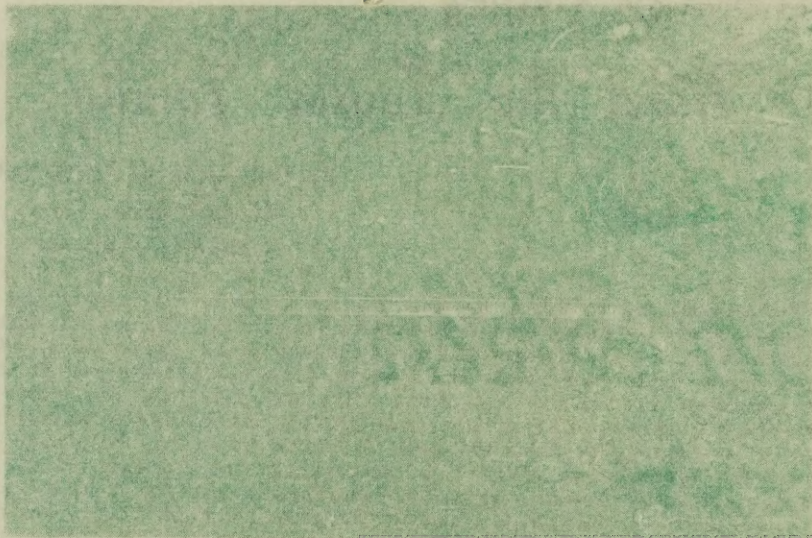


A close-up of St. Augustine grass sod



ZOYSIA JAPONICA—Note fine-textured composition as compared to the coarse leaves of St. Augustine.





UPPER LEFT—2-inch block of Zoysia sod. UPPER RIGHT—Small strip of Zoysia. LOWER LEFT AND RIGHT—2-inch piece of sod and spring properly set. Note the leaves must not be covered. (Grass photos courtesy A. P. I. Agricultural Experiment Station, Auburn, Alabama).

foot grasses seem to completely take over the planting area. By separating the dense foliage of the weeds, you will find the japonica plants still there, slowly creeping around and underneath these obnoxious weeds, establishing a permanent sod with deep root system. The following year, as if by magic, you will find only a few scattering plants of these unwanted weeds, and by the third year your thick turf will have completely crowded out these troublesome pests. In the future we are quite confident that you will hear more and more of the wonderful selections from Zoysia japonica. The U.S. Department of Agriculture, in conjunction with the Green Section of the U.S. Golf Association are producing some very promising strains of this oriental grass. Selections from hundreds of crosses are on trial plots and under observation by our leading turf specialists; so don't be surprised at any time to hear of some unbelievable grasses being released for the improvement of your lawn area.

(Additional information on the Zoysia is available upon request from the author.)

The main advantage here is the rapidity of coverage and the elimination of more seed processing. This method incurs more labor and more expense than propagating from seed, but it is more satisfactory when introducing japonica into an existing lawn. Coverage of a desired grass will be increased twofold by keeping out weeds. However, japonica, more than any other grass, will take care of weeds and other competition. When plugged among well established centipede and bermudagrass, we were astounded to observe the persistent red runner of japonica growing through the thickest sod. Frequently, we have noticed that when the competition from other grasses seems to be more than it can stand, the japonica will undermine the aggressor by sending these vigorous stolons beneath the soil for an underground attack. Without such competition, this plant sends out horizontal stolons that pin to the ground at each joint and there form a new independent plant capable of producing runners in all directions.

Do not become discouraged the first year of planting if the Crab and Crow-

this turf can be established from seed. This is definitely a welcomed bit of news to those that have experienced springing or plugging their lawn areas. Presently, there is a limited supply of seed available and because of the difficulty of securing these seeds, the price ranges in the neighborhood of \$5 to \$6 per pound. There are approximately 1,300,000 seeds to the pound and this is recommended to plant 500 sq. ft. of lawn area. Plantings should be made on a clean well-prepared seedbed during the warm season of the year, preferably between March and August.

Like most other good things, japonica does have one weakness—the seeds are slow to germinate. Unprocessed seed require from six months to one year to sprout. By using the recommended pre-germination process, one can reduce this period to 14 days. It is best to keep seed beds entirely free of weeds and force the seedlings to cover within a five month period. From such areas we take two-inch squares of sod and plug them on 12 inch centers into an area prepared for the new turf. This grass can be successfully planted into an existing area of unwanted grasses by this



## MEYER ZOYSIA AND ZOYSIA TENUFOLIA

# Meet the Zoysia Family

By WILLIAM W. NORDAN

Nordan's Grass Farm  
Abbeville, Alabama

In the two previous issues of "Green Thumb", you have been introduced to the father and mother of the prominent Zoysia grass family—Matrella and Japonica. In this concluding article on lawn grasses, I should like for you to meet the talk of the turf world, the promise of the future, the offspring of Japonica—Meyer Zoysia. This remarkable strain is the latest turf star to be released for your approval and admiration. After years of research, our turf specialists point with pride to Meyer as the best accomplishment of the turf improvement program. People who have seen a well established Meyer lawn can truthfully say that it is the lawn grass that we have been awaiting.

Meyer Zoysia is one of the new improved turf grasses which has been recently developed by the United States Golf Association Green Section working with the Bureau of Plant Industry, U.S. Department of Agriculture. This achievement was undertaken primarily for the improvement

of golf course tees and fairways, but as in most cases, the ideal golfing grass is also desirable as a lawn grass.

This newer wonder grass was released to the public this past spring. It is a selected strain of the very hardy and better known Zoysia Japonica. By this, I mean that from scores of seed plantings of Japonica, this one strain was selected, tested, and proved to be the most outstanding turf grass to date.

The name Meyer was selected as the most appropriate for this hardy grass and also honoring Frank N. Meyer, a plant explorer for the Bureau of Plant Industry. Mr. Meyer was born in Holland in 1875 and made his first exploration in Korea in 1905. His first collection of Zoysia seed was sent to the Department of Agriculture in 1906 from Korea under the scientific name of *Zoysia pungens*, which was later changed to *Osterdamia pungens*, and still later to *Zoysia Japonica*.

For the home owner who has been wishing for a beautiful lawn free

from crabgrass, "chinch bugs", fungus, and summer weeds; then Meyer Zoysia is truly their dream come true.

Meyer is much like the parent *Zoysia Japonica* in several ways as stated by Dr. Fred V. Grau in his recent article "Presenting Meyer Zoysia". The similar traits are as follows: 1. It is adapted to any type of soil. 2. It thrives during the heat of summer. 3. It is very drought tolerant, needing less irrigation than most lawn grasses. 4. It is easy to mow when cut regularly and needs mowing less often than most turf grasses. 5. It can be mowed at heights at from one-half inch to four inches without loss of vigor and beauty. 6. It has a wide range of adaptation, having proved its winter hardiness in the northern states and heat resistance in Florida. 7. It produces a firm, resilient cushion which delights everyone who uses it. 8. It is very resistant to wear. 9. It has a very pleasing color (about like Kentucky Bluegrass) during growing season. 10. It is a permanent grass.



Meyer Zoysia . . . Pleasing color like Kentucky Blue Grass.



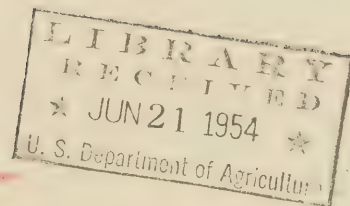
(For further information concerning the Novais grasses or any of the other 14 turf grasses adapted to the South, write the author enclosing a stamped self-addressed envelope.)

Tenuifolia is as you might expect another Oriental introduction and is also a beautiful grass. It has the smallest leaves of any member of the family and when properly cared for

two inch plugs. at least two years to cover solid specialists specify that it will require practical home purposes the time less than four months. However, from our selected stock, covered in five months, and Matrella taken under the same conditions covered cover. On the other hand, Japanese quirted seven months to completely maintenance, our Meyer plots re- condition, fertilization, and irrigation, such as proper soil preparation. Under exceptional ideal the slowest grower that we have encountered. Meyer is a very slow grower, in fact.



INSTRUCTIONS FOR PLANTING AND  
CARE OF MEYER (Z-52) ZOYSIA



The Grass

Within a few days you are to receive vegetative stolons of one of the newer turfgrasses for better lawns. The idea of having a lawn of two grasses, a hot weather grass which grows beautifully in the summer, and a cool weather grass which comes up through the hot weather grass for Fall, Winter and Spring color, is a new one. The hot weather grass you are starting in your lawn is Zoysia. It is a selection from a Japanese lawn grass brought to this country many years ago by an Agriculture Department researcher.

The characteristics of Zoysia are unlike most grasses commonly used for lawns. It can be planted and thrives in hot weather, is highly drought-resistant, needs little watering except when conditions are very dry, and is permanent. It grows slowly and needs cutting less often than most other grasses. It can be cut as short as one-half of an inch during the summer. Few other grasses will survive this treatment. It forms a carpet-like turf which is green from late April to late November, when it goes dormant. Then the cool season grasses in your lawn take over.

The sprigs you plant will spread slowly, therefore, the first year they may be lost in crabgrass. If this happens, do not become alarmed, the desired grasses are still there growing and the following year will take over and eliminate the crabgrass. One of the penalties of having a lawn of Meyer Zoysia, which needs less cutting than other grasses, is that it spreads relatively slowly. To see what is happening to your Zoysia, plant several springs in a bare spot, keep it free from crabgrass and weeds and watch it grow. The same thing will be happening to your other plants but you will not be able to see it happen.

Care Upon Arrival

The Zoysia planting material is tough and will stand a good deal of mistreatment. It is best to plant it soon after you receive it, but a delay of a week or ten days is not serious. It can be kept in the container for several days, but if it cannot be planted within ten days it is better to place the plants partially submerged in water and in the shade until they can be planted.

To Plant

When ready to plant, take sod or stolons and divide each runner into individual plants with one root system and one leaf cluster using snippers or scissors for cutting. Place all prepared plants into a container of clean cool water and plant from the submerged stock.

To plant into your existing lawn, make holes approximately a foot apart. The holes can be rough and need not be the exact shape



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of the plants. Holes two inches deep should be sufficient and can easily be made with an ordinary trowel. Fill each hole with water and after the water has seeped into the ground, put in a sprig, leaf side up, and level soil around plant, then water again to settle soil.

To start a new lawn, level area and rake off all stones. Using a small garden plow, lay off rows 12 inches apart and 3 inches deep. Sprig plants every 12 inches in the row covering one-half of the leaf length with soil. Since the Zoysia is slow covering, it may be desirable to provide temporary grass by seeding the area with ryegrass, fescue or bluegrass. This will slow the spread of the Zoysia, but will give rapid greenage. The Zoysia will ultimately crowd out the more temporary grasses.

### Initial Care

Once the sprigs are in, they can be left to themselves except in very dry weather when an occasional watering is desirable. The plants will spread more rapidly if a small amount of fertilizer is scattered around each plant or over the area. One cup of a 5-10-5 or similar fertilizer should be sufficient for a 100 sq. ft. area. This could be repeated each month to get the most rapid growth. But no fertilizing is necessary if you are willing to wait longer. Close mowing will help keep down other grasses and help speed the spread of the Zoysia.

During the first summer, each Zoysia sprig in your existing lawn sends out underground runners or stolons with only an occasional blade of grass coming to the surface. As a result, it almost seems to disappear. For this reason it is better to plant the sprigs in a regular pattern rather than scatter them around. This way you can keep track of them better. Also, we suggest that you save out three or four sprigs and plant them a foot apart in bare ground where you can keep them weeded and observe their growth. In a non-competitive state this grass sends out stolons above ground.

### Permanent Care

An established Zoysia lawn requires very little care. Once established, it needs little, if any fertilizer. It needs mowing only occasionally, however, a neater lawn can be established by close and regular mowing. Summer weeds cease to be a problem after a complete coverage of the Zoysia. Most broad-leaved weeds can be killed with 2-4D.

We wish you success in establishing this truly wonderful lawn. We stand ready to supply more stock of Meyer Zoysia as you want to expand your planting. Meyer can be planted successfully all summer long and late into the fall.

NORDAN'S GRASS FARM

Improved Lawn Grasses for the South

Abbeville, Alabama







ADVANTAGES AND DIFFICULTIES OF OUR FINEST SOUTHERN GRASS

By - Winston H. Reinsmith  
Landscape Architect, Southern Region,  
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And - H. R. Halsey  
Zoysia Lawns, Atlanta, Georgia

JUN 21 1954  
U.S. Forest Service  
Culture

After more than twenty years of use in the United States Zoysia matrella remains the best lawn grass for the South and a very interesting challenge to all who wonder why a grass of such evident superiority is not universally adopted. As a matter of fact, however, this grass is not liked by the average seedsman or nurseryman. It is approved by landscape architects, but disapproved by many landscape gardeners. It is desired by home owners who have seen it in a well established lawn, but damned by home owners who have failed to secure a lawn after what has seemed to them a reasonable trial. It is a valuable asset in the sale of real estate, but it is not used by many real estate promoters.

An established Zoysia lawn is a beautiful thing. It is permanent and almost carefree. It is so evidently a luxury that it is referred to as the rich man's grass. To walk upon it gives one a unique sensation, suggesting, possibly, extraordinarily thick oriental rugs. And yet it is tough and withstands hard use better than any grass we know.

ZOYSIA LITTLE KNOWN

Why, then, is it so difficult to establish? Why have so many nurseries given up the attempt to grow it and to sell it?

The difficulty is in reality a matter of our own American character. We are too impatient. We demand highspeed efficiency in all our activity. And Zoysia is slow. It is not spectacular. It is frequently heartbreaking in its failure to cover ground more rapidly. It seems to dawdle along on the job while the thoroughly American weeds grow prodigiously and seem to crowd out the grass. Many a planter of Zoysia has given up the fight when his grass became lost in the competition, overwhelmed by Bermudagrass or Crabgrass\* or Quackgrass. We may admire the magnificent old lawns of England, but we smile at the idea of working for several generations just to produce such nonessentials as lawns.

Oh yes, a lawn is valuable, even in an efficient industrial nation. During recent years large industrial corporations have shown increasingly keen appreciation of the value of a lawn to set off a beautiful building. But that appreciation has not yet worked down to the average home owner, rare as he is amid a nation of renters. And though real estate dealers recognize the value of a good lawn in selling property, they seldom go beyond the demand for a quick green cover in promoting new real estate developments.

Now, any grass can make a beautiful lawn, -if the observer is placed at sufficient distance to miss the inherent ugliness of some grasses. Even Crabgrass and Quackgrass and other less obnoxious broad-leaved grasses, such as St. Augustinegrass, and Carpetgrass, and Centipedegrass, and the Fescues, may lend the beauty of their verdure to a landscape. But very few people who know the beautiful lawns of Zoysia in the South or Velvet Bentgrass or Kentucky Bluegrass in the North can accept these broad-leaved grasses as beautiful, at least for a close-range view.

A Bermudagrass lawn can be beautiful, even at close range. Bermudagrass grows rapidly. It covers ground in an amazingly short time. It is so prodigious a grower as to be one of our worst weeds. But a Bermudagrass lawn at its best is a promise of deterioration which no work or care can prevent. It must be remade every few years.

Zoysia, on the other hand, improves each year. It requires less care than Bermudagrass, tolerates fewer weeds, grows in shade that prohibits Bermudagrass, is never a pest, does not need remaking, and is not susceptible to the diseases and insect enemies that plague other grasses.

Why, then, the failure of Zoysia immediately to capture the whole field? Slowness of growth alone can hardly explain it.

\*Called "Crowfootgrass" by some in the South.



Perhaps the best summary explanation is in the observation of an old Zoysia lawn-maker who said, "You can't buy a Zoysia lawn. You've got to earn it." For the gem of beauty that is Zoysia is not achieved merely by planting it. The first year of its growth requires close attention. It must have water and light and freedom from excessive competition of weeds and other grasses; fertilizer is necessary, and freedom from coverage by dirt or matted dead grass or piles of leaves or of weeds pulled out and thrown down upon the ground. It is not so much the quantity of fertilizer and water as it is the frequency with which they are applied. But note that this first year of a Zoysia planting is the critical year. Such care for the established lawn is not necessary.

#### COST

Zoysia is expensive, -when the first cost only is considered. In the long run it is the most economical of beautiful lawns. That fact is certain to increase the demand for homes with Zoysia lawns as the public becomes familiar with this grass. But now while there are no such houses on the market, the cost to be considered is that of establishing the lawn. This cost is made up of two primary elements: cost of the sod delivered at location of the new lawn (this grass is grown in very few nurseries in America, and the transportation costs are high), and cost of the planting, -that is, the labor and machines and materials for soil preparation and Zoysia setting.

At present, Zoysia sod is sold at from three dollars and fifty cents a square yard in Auburn, Alabama, to five and a half or six dollars in some other cities of the South, and nine or ten dollars in some West Coast locations.

At that rate solid sodding is very seldom practiced, and even the early practice of plugging in sod squares of two, three, six, or other number of inches in size has been given up generally in favor of the sprig planting, by which one yard of turf will cover about forty times its original area. For this method it is important that the ground be thoroughly prepared, preferably with a rotary tiller. The total cost of the Zoysia grass, soil preparation, and planting now runs in the neighborhood of fifty cents a square yard of planted lawn in case the area is about eleven hundred square yards; higher for very small jobs where the transportation of workers and equipment to and from the job constitutes an appreciable fraction of the cost; much higher for steep slopes where solid strips of turf must be used to check erosion; and much lower for large level projects of several acres.

That initial cost seems very high to people who have thought of lawns as places where you just let the Bermudagrass or Carpetgrass, or whatever weeds were there, grow as they wished except for a weekly mowing. It seems low in comparison with the cost of solid sodding, which is practiced on a fairly large scale in many cities of the country. And it compares favorably with the cost of preparing a lawn in accordance with the directions of any reliable seed house.

#### APPEARANCE WHILE MATURING

One of the bad features of Zoysia is that the appearance of the new lawn in the making is not very attractive. That is true, of course, of all new lawns except those secured by solid sodding. But so slow is Zoysia that this initial period lasts much longer than with other grasses. It is possible under ideal conditions (careful preparation of soil, expert planting, full sunlight, daily watering, frequent fertilizing, total weeding) to get complete coverage of the ground in six months (April to September) from the time of sprig planting, but that is very unusual and not generally worth the effort. Under good conditions coverage can be expected in twelve to eighteen months. Frequently two full years have been required, and in some cases of unfavorable conditions three years were necessary.

Total weeding is seldom practiced. At the present cost of labor it is quite out of the question. The chemical weed killers have a decided value here, but they are not foolproof. It seems probable that they will become very helpful as their uses and limitations are better known. The selective weed killer such as 2,4-D, phenyl mercuric acetate, potassium cyanate, etc., do undoubtedly kill many weeds without killing much of the grass, but in excessive amounts or concentrations they may kill any grass, and they are nearly certain to retard its growth. If that retarding effect is less than the retarding effect of the competing weeds, then removal of the weeds with the chemical spray is a justified economy.



Use of a temporary grass to take away the curse of bare ground or to keep out weeds to some extent or to prevent erosion during the first year is frequently practiced. Ryegrass has been often used. When sown sparsely, less than a quarter of the usual seeding, it has given satisfactory results in many cases. But in general, the competition of Ryegrass with the Zoysia is not favored. Kentucky Bluegrass seems to be better. Both grasses germinate readily in autumn and die out in the heat of a southern summer. But Ryegrass seems to be more reluctant to let the Zoysia grow. In most areas Bermudagrass will come back during this first year, no matter how carefully it has been removed in the soil preparation for Zoysia. It grows with the Zoysia, covering the ground much more rapidly. If allowed to grow freely it may seem to dominate the Zoysia and even to crowd it out. It should be kept mowed to about one-half inch in order to let the sunlight get at the Zoysia. Eventually Zoysia will become "pure", with no weeds or other grasses evident. But actually, Bermudagrass will remain for years, a sort of suppressed partner, living but not active, in a sort of containment.

Even more interesting is the case of "nut grass" trying to compete with Zoysia. This weed, a sedge and not a true grass at all, is almost as ubiquitous and uncontrollable as Bermudagrass. It will live for years in dormancy, waiting for release from the restraint imposed upon it, to spring up and grow vigorously. But it fares badly in the battle with Zoysia. During the first year there may be a great deal of the nut grass showing. During the second year several shoots may come through the thin Zoysia sod. By the third year the nut grass is rather effectively squelched and seems to have disappeared completely.

#### OTHER TEMPORARY GRASSES

Because of this ability of Zoysia to win out over other grasses many attempts have been made to plant it in well established Bermudagrass lawns without removing the Bermudagrass. Sometimes this procedure is necessary, as on the steep bank of a terrace whose protective covering one hardly dares to remove because of the danger of erosion. This method is frequently very successful, but very slow. Several years after the initial planting the grass may seem suddenly to change from Bermudagrass to Zoysia.

A new type of Bermudagrass, known as African or Fine-leaved Bermudagrass, has recently given a good performance as a temporary filler, yielding to the Zoysia more readily than its better-known cousin. African Bermudagrass is now being grown for the purpose in Auburn. It costs about as much as the Zoysia.

Zoysia is known as an excellent shade grass, -probably better than St. Augustinegrass and nearly as good as the temporary Ryegrass. But it grows very much better in full sunshine than in the shade. Some dense shade will not permit the establishment of a Zoysia lawn. Under pine trees and other tall trees whose branches are trimmed back for some distance above the ground, it grows easily and forms a thick carpet close around the tree trunks. But it will always grow faster and more luxuriantly in full sunlight. Some of the apparent difficulty in shade, however, is avoided by supplying fertilizer and water at frequent intervals. The competition of tree roots removes these essentials rather quickly. Not total amount but continuous availability of the nourishment is what counts.

Just why there is so much variation in the speed of Zoysia growth is frequently puzzling. At times a clump of the grass well planted will seem almost dormant for several months. Then suddenly it sends out a spear-headed runner along the ground, usually on the surface, white-jointed at half-inch intervals. These are somewhat like Bermudagrass runners, whose spearheads are branched and joints are at much longer intervals, and growth is at much greater speed. After a few weeks the Zoysia runners take root and spread from every joint, forming a closely knit mat on the ground. Over several months the leveling process begins and Zoysia fills up the spaces with green leaves, unbranched and easily distinguished from the slightly wider Bermudagrass blades.

Strangely enough, growth of Zoysia from small sprigs is much faster than from solid clumps. But the sprigs have greater difficulty in surviving severe competition or adverse conditions. One of the Authors has had considerable success with the use of plugs of Zoysia sod, which were again removed by cutting from their runners after the runners were well started. This makes possible the use of starter plugs over and over again.



Let us state in summary form the handicaps that have delayed the popular acceptance of Zoysia:

- It is very slow in growing.
- It must be planted by sprigging, for there is no seed.
- It is difficult to establish, requiring much care during the first year of its growth.
- It is not an evergreen and does not accept winter grass seed so readily as Bermudagrass.
- It can be killed by covering completely for a few weeks.
- It is expensive to ship any great distance.
- It is not a quick money-maker for real estate promotion.
- It is not a money-maker for most nurseries.
- It is tough to mow with a hand mower when allowed to grow long.
- It is slow to recover from a serious setback (as when an airplane crashes on your lawn).

But in spite of all this, Zoysia matrella grass is winning acceptance as a lawn grass in the same irresistible way that it takes over ground against weeds and other grasses, --very slowly, but inevitably. For a mature Zoysia lawn - is the most beautiful of all lawns;

- is permanent;
- is constantly improving;
- is free from weeds;
- is free from disease and insect enemies;
- is drought-resistant; -(-
- is the best shade grass in the South for a permanent lawn;
- stands hard use better than any other grass;
- stands neglect of a summer vacation without tolerating invading weeds;
- is an evident luxury, setting off the house and garden more effectively than a Cadillac or Lincoln car parked in the driveway;
- saves time by forcing the use of the power mower, an efficiency step never again to be surrendered.

#### CHARACTERISTIC GROWTH

If you have never seen a piece of mature Zoysia turf dug from its place of growth and the soil shaken or washed out of the roots, you will be astonished at your first sight of it. The fine blades of the grass are a true green easily distinguished from the blue green of Bermudagrass, and are many times more numerous in a given area than are those of other grasses. The roots form a dense mass that shows at first glance why weeds cannot invade Zoysia. There is absolutely no bunching of the plants as in so many of our grasses, which leave spaces between the bunches no matter how long they have been growing.

In this characteristic root growth--a dense uniformly tangled mass, two to four or five inches thick, depending upon the age and the soil, the water and the sunlight--is the secret of Zoysia's ability to grow luxuriantly in almost any soil. The grasses generally are the best soil factories that nature provides. They form humus at a much faster rate than do the trees of a forest. The annual death and decay of the grass roots built the great prairie soils of our Mid West. Zoysia, slow growing as it is, has a far heavier mass of roots in a given area than have most grasses. This makes it one of the best of humus producers. Plant it in red clay and note the change to black soil underneath just a few years later.

#### CULTURE

Every transplanting job is a compromise. It is the process of remaking the ideal procedure into the feasible, the desirable into the practicable. Ideally a tree to be moved should have none of its roots disturbed; the whole mass of soil containing those roots should be moved into an excavation large enough to contain it. In most cases such procedure is impossible. The procedure adopted is simply the result of trial and error,--of experimental research, if you prefer it so stated. What size ball of earth can be dug and transported and planted at reasonable cost to give reasonable certainty of healthy growth in the new location?

So with Zoysia. While one would like to make the new lawn by sodding with Zoysia turf whose roots are undisturbed in the transfer, such procedure is prohibitive in cost. A square yard of Zoysia turf, with all the soil in the roots and wet down for certain survival, will weigh well over a hundred pounds. But by shaking out the soil -- a procedure possible when the soil is very sandy --



that weight may be reduced to about twenty pounds. True, the roots may become dry. And dry roots do not respond so quickly to the transplanting. Frequently the newly planted sprigs from such turf will appear dead for a month or two after being put back into the ground. But they seldom fail to recover and to proceed to vigorous growth. Zoysia sod has been left unplanted for several months and still grown rapidly when planted. Moisture, however, should always be supplied when possible. If the sprigs torn from the piece of sod are kept wet, as in a bucket of water, their readiness to grow is greater, but such procedure is not always feasible.

The tearing apart of the stock to be planted is not so simple as it sounds. So tough is the mass of tangled roots in a bit of mature Zoysia turf that a novice may find it very difficult to pull it apart. The earlier directions of Zoysia experts called for cutting the sod with a hatchet into plugs of a few inches square. But constant experimenting has convinced us that better results are obtained by tearing small pieces from the stock, using a 2 x 4 or heavier timber to hold the sod under foot during the process. If all soil has been shaken from the planting stock, and especially if the stock is young (that is, has not been growing more than two years), it is possible to tear out the sprigs by hand.

All Zoysia turf sold by the nurseries is not alike. The older, heavier-rooted stock is generally grown on heavier clay soil and sold with the soil still in the roots. This turf should be several years old to give its greatest value. The lighter, younger stock -- frequently only one year from its first setting -- is generally grown on light sandy soils. This can be shipped more economically (after shaking out the soil) and is easier to handle, but does not possess so dense a root system as the older stock. The cost to the nursery differs for these two different methods of growth. The rapid turnover of stock and the much greater ease of digging and handling reduces the cost of the sand-grown bare-root stock somewhat below that of the clay-grown Zoysia.

Although Zoysia will succeed in almost any soil, it pays to prepare the ground for planting with much care. Grasses generally resent acidity below pH6, and the authors prefer to use basic slag on such soils. It is easy to incorporate fertilizer and humus and lime into the top four inches of the soil when using a rotary tiller, but the advisability of doing so must depend upon the soil with which you start. The whole surface should be a finely prepared seed bed to give plenty of loose fine soil for packing about the roots of the sprigs of grass as they are planted. Furrows are cut into this soil (on contour lines if the slope requires it, at distances of approximately ten inches), and sprigs of grass torn from the planting stock are planted in the furrows at about ten-inch intervals. The soil must be packed in around the roots, leaving the blades in the air. Just as far as possible the grass should be kept moist during this planting, and the hose should be used freely afterwards.

It would seem that the distance between the sprigs would determine the length of time required for coverage by the growing Zoysia. To a certain extent this is true, but the difference between a five-inch spacing and a ten-inch spacing will not make a corresponding difference in the time required to fill the space. The pause before runners are sent out may be the same in both cases. But when the runners start vigorous growth, they make short work of filling in.

#### EARLY MAINTENANCE

After planting is completed, the ground rolled or tamped and thoroughly watered, the difficult first year of care begins. Water is the first essential. Keep the ground moist. In dry weather it pays to use the hose every day. After growth has started as indicated by the appearance of surface runners, fertilizer should be applied lightly but frequently. A good commercial fertilizer such as Vigoro or Velvetgreen with a fairly high nitrogen content, every three or four weeks at the rate of five pounds per thousand square feet, is satisfactory. Chilean nitrate, ammonium nitrate, or urea, may be used to advantage, but these high nitrogen-content fertilizers are not safe to apply without great care to avoid burning.

As the growth of Zoysia proceeds, the competition from weeds and other grasses sets in. Close mowing will reduce much of this competition, but for the ground-hugging Bermudagrass and Crabgrass and Quackgrass mowing may not be sufficient. In that case, hand weeding or the use of selective weed killers may be tried.

To provide against "skips" or weak spots in the lawn, it is well to set out a brood-stock bed or patch from which pieces can be taken to mend such defects. As the Zoysia completes its fill-in, the edges of the lawn will very slowly spread over even a concrete walk or driveway or into an adjoining garden or plot



of ground. The margin cut back from the walk or lifted out from the ground, not over twice a year at the fastest growth, can be used for repairs or for new planting. It is valuable enough to save, even if it must be given away to a neighbor.

During the first year Zoysia's greatest need is water. But a mature Zoysia lawn is amazingly drought-resistant. It has the faculty of shriveling its blades by furling when hot and dry, and it may appear dormant or even dead if the drought is long continued. But with water from rain or hose, back come the color and vigor of the lushly growing grass. Part of the ability to survive such drought is due to the long anchor roots several feet deep and therefore seldom seen in the usual handling of Zoysia.

It is interesting to watch Zoysia lawns during the hot days of late summer when gardens and most lawns seem to give up the struggle and accept their fate of lifelessness. That is the very time that Zoysia can grow best. Just a little encouragement from water, by hose if rain fails, will keep the Zoysia flourishing in rampant luxury.

#### TYPES OF USE

Zoysia is unique in America in possessing the characteristic most noted in the famous old lawns of England,-- that of improving with age. The average good lawn in America runs down in a few years and requires constant remaking. This is especially true of Bermudagrass. But our oldest Zoysia lawns, now over twenty years old, are still flourishing without any remaking, and without the great care lavished upon the English lawns. In Auburn, Alabama, you will find Zoysia lawns of all degrees of maturity, --new, a few years old, five, ten, twenty-year stands, and more. The older they are, the better,--more luxuriant, more beautiful.

For a garden path or a lawn adjacent to garden beds Zoysia is ideal. It does not invade. Two edgings a year will keep the fastest-growing Zoysia lawn from encroaching upon the garden. Zoysia does not hold dew in the morning like other grasses.

For a play area Zoysia withstands traffic to an unusual degree. But reasonable care should be used. Rest periods of two full days after a four-hour group-play period should be provided for the grass. The use of sprinklers over worn areas to ward off more wear is helpful. Spots that are entirely worn out will call for the brood-stock patch set aside when the lawn was made.

#### LATER MAINTENANCE

After Zoysia has been thoroughly established it needs little fertilizing and watering. One application of 6-10-4 each fall, about ten pounds per thousand square feet, will suffice. More fertilizer can be used if desired, but it will make the grass grow faster and more frequent mowing advisable. But above all else do not top-dress Zoysia with manure or top soil unless you know the danger of killing it thereby, and how to avoid that danger.

Zoysia grows so slowly that it needs less mowing than most grasses,--after the first year, when you are mowing primarily to keep the weeds down. But to keep the lawn trim, the authors prefer to mow about every ten days, with the mower set at one-half inch. A higher set--say one and one-half or two inches--is preferred by many to give the softer, deeper "nap" to the lawn. If there is too great an interval between mowings, or if long grass is cut much shorter so that the clippings are heavy, a grass catcher should be used with the mower, or the lawn should be raked or swept after mowing. Clippings of a ten-day period will do no harm when left scattered on the lawn. But those of a three-month period will be decidedly harmful, also very unsightly.

A power mower is advisable for a lawn of any size. Zoysia is rather tough to mow by hand if the cut is for more than a two-week growth, but its crispness yields a beautiful surface under a good mower.

#### THE WINTER LAWN

In some cities of the South the winter lawn of Ryegrass has become a popular feature. Many a lawn of this beautiful green exists through the five cooler months only to yield to nothingness with the coming of hot weather. Each fall the ground is forked up and Ryegrass is sown. Each spring the weeds and the Bermudagrass take back their own. Occasionally the Bermudagrass lawn that recovers for the summer is beautiful. But too frequently the stress is on the winter lawn and the summer lawn is neglected. The reason for this is simply the greater difficulty in keeping the summer lawn in flourishing condition.



Zoysia is not an evergreen. It turns gray brown with the first severe freeze, usually a few weeks after Bermudagrass has lost its color. It recovers its green a few weeks before Bermudagrass recovers in the spring. Some people object to the winter appearance of Zoysia, although this is usually the result of the unkempt appearance of uncut Zoysia that has been allowed to enter the winter period unprepared. If the Zoysia is kept mowed and not allowed to grow long just before freezing weather sets in, it does not offend the sense of the fitness of things of a great many of us who are rather particular about the appearance of lawns. But for those who insist upon the winter green in their lawns, Ryegrass or Bluegrass can be seeded on top of the Zoysia for the winter. Zoysia when mature is not so hospitable to this seeding as is Bermudagrass, although a cutting just before the seeding is helpful. One should never expect to have so thick a winter lawn on top of Zoysia as upon Bermudagrass. And it should never be necessary to warn anyone against tearing up the Zoysia lawn to plant the Ryegrass. The winter grass does delay the spring recovery of the Zoysia. We do not discourage winter grass over Zoysia, but for ourselves we prefer to take the winter period of rest for our lawns as a rest period from lawn care for ourselves.

Finally, a word of advice regarding the grass to choose for a Southern home. If it is your home and you want an utterly carefree outdoor area, pave the area with concrete or asphalt. That will cost less than ten times the cost of a good lawn, and it should last thirty to fifty years. But if you want a lawn, choose the grass that will give you the greatest satisfaction. If that consists in an immediate covering for a sunny area, choose Bermudagrass with winter Ryegrass, --the summer lawn to be remade every third or fourth year, and the winter lawn to be sown in September of every year. If Bermudagrass involves too much work in mowing and remaking, and you don't care what your lawn looks like in winter, try Centipedegrass. If you have much shade and still don't want trouble of establishing a Zoysia lawn, try St. Augustinegrass. Carpetgrass might be tried as a sort of desperate economy move. But if you want a lawn of which you can be proud at any season of the year or from any point of view, and one which you are willing to earn, and if you have the patience and humility required by Nature of all to whom her greatest rewards are given,--try Zoysia.

"That, which grows rapidly, dies quickly.  
That, which matures slowly, endures."

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NORDAN'S GRASS FARM

"Growers of Better Sod for Better Lawns"

Abbeville, Alabama



